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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/824,670	04/04/2001	Torbjorn Sandstrom	0104-0237P	3642
2292	7590	10/06/2003	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			TRA, TUYEN Q	
			ART UNIT	PAPER NUMBER
			2873	

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/824,670

Applicant(s)

SANDSTROM ET AL.

Examiner

Tuyen Q Tra

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 28-39 is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Oath/Declaration

1. The declaration filed 04/04/01 is acceptable.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d).

Drawings

3. The drawings in this application are objected to by the Draftsperson as for the reasons noted on the attached Notice of Draftsperson's Patent Drawing Review, form PTO-948.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- Claims 1, 20 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- Claim 1 recites the limitation "*the coordinate system*" in line 23. There is insufficient antecedent basis for this limitation in the claim.

- Claim 20 recites the limitation "*the coordinate system*" in line 20. There is insufficient antecedent basis for this limitation in the claim.

- Claim 25 recites the limitation "*the coordinate system*" in line 25. There is insufficient antecedent basis for this limitation in the claim.

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- Claims 2-24, 26 and 27 are rejected because they depend on either rejected claims 1 or 20 or 25 above.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Sandstrom (U.S. Pat. 6,373,619B1).

a) With respect to claim 1, Sandstrom discloses a pattern generator in Figure 6 comprising of a source for emitting light in the wavelength range from EUV to IR,

a spatial light modulator (SLM) having a multitude of modulating elements (pixels) r adapted to being illuminated by said radiation

a projection system creating an image of the modulator on the workpiece,

an electronic data processing and delivery system receiving a digital description of the pattern to be written, converting said pattern to modulator signals, and feeding said signals to the modulator,

a precision mechanical system for positioning said workpiece and/or projection system relative to each other,

an electronic control system controlling the position of the workpiece, the feeding of the signals to the modulator and the intensity of the radiation, so that said pattern is printed on the workpiece; and (col. 14, lines 30-48), means for rotating the coordinate system of the pattern to be created (col.13, line 61).

b) With respect to claim 2, Sandstrom further discloses the means for rotating the coordinate system of the pattern to be written comprises means for rotating the modulator (col. 13, line 61).

Allowable Subject Matter

7. Claims 3-19 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The reason for the indication of allowable subject matter is that (claim 3) the means for rotating the coordinate system of the pattern to be written comprises an optical element for rotating the image projected from the modulator to the work-piece; (claim 6) the means for rotating the coordinate system of the pattern to be written comprises means for imposing a rotation to the digital description supplied to the electronic data processing and delivery system; (claim 7) the means for rotating the coordinate system of the pattern to be written comprises means for imposing a rotation to the modulator signals supplied by the electronic data processing and delivery system; (claim 8) a detection system for detecting a rotational deviation between an already existing pattern on the workpiece and the pattern to be created, said means for rotating

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the coordinate system of the pattern to be created being operable to diminish said rotational deviation disclosed in the claims is not found in the prior art.

8. Claims 20-27 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

The reason for the indication of allowable subject matter is that (claim 20) detecting a rotational deviation between the already existing pattern on the work-piece and the second pattern to be created, and imposing a rotation to the coordinate system of the second pattern to be written to diminish said rotational deviation; (claim 25) a computer-controlled light modulator controlled according to input pattern data, a deflector for scanning of the least one beam across a region of the surface of the work-piece, and means for rotating the coordinate system of the pattern to be created disclosed in the claims is not found in the prior art.

Allowable Subject Matter

9. Claims 28-39 are allowed.

The reason for the indication of allowable subject matter is that (claim 28) an alignment system for alignment of the workpiece by detection of alignment marks on the workpiece, the alignment system comprising: a light source for emitting a detection light to be reflected on the workpiece, and at least one detector for analyzing the reflected light, wherein the detection light at least partly is projected on the workpiece in the same beam path as the writing beam for creation of the pattern; (claim 39) detecting the orientation of the workpiece for use in controlling the writing process; writing a pattern according to input pattern data on the

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workpiece, with electromagnetic radiation in the wavelength range from EUV to IR, through an optical path; wherein the detection of the orientation comprises: projection of a detection light on the workpiece, the detection light at least partly being projected on the workpiece in the same optical path as used by the writing radiation for creation of the pattern; detection of the light reflected on the workpiece; and analyzing the detected light for identification of the alignment mark disclosed in the claims is not found in the prior art.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sandstrom (US Pat. 6,504,644 B1) discloses modulator design for pattern generator.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuyen Tra whose telephone number is (703) 306-5712. The examiner can normally be reached on Monday to Thursday from 8:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps, can be reached on (703) 308-4883. The fax number for this Group is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

tt

September 11, 2003


Hung Xuan Dang
Primary Examiner